UNIVERSITI TEKNOLOGI MARA

P2PMATHS: FORM 2 MATHEMATICS PATH TO PROGRESS E-LEARNING PORTAL USING PERSUASIVE TECHNOLOGY

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ABSTRACT

Learning mathematics was often challenging for students due to its abstract concepts and the need to solve complex problems. The objective of this project was to develop P2PMATHS, an online learning portal specifically designed to complement the Form 2 Mathematics curriculum in Malaysia. It addressed common difficulties faced by students in topics such as algebra, factorisation, and three-dimensional geometry. The portal was structured into modules comprising comprehensive notes, formative games and activities (without evaluation), summative quizzes (with evaluation), and self-paced practices to support learning and skill development. Persuasive technology principles including tunnelling, self-monitoring, cooperation, and liking were integrated to increase motivation and engagement. The system was developed based on the ADDIE instructional design model, and its effectiveness was assessed through functionality testing, expert evaluation, and usability testing. Construct analysis showed that 90.3% of users found the portal useful for learning, 90.3% found it easy to learn, and 87.1% reported overall satisfaction, all with low standard deviation values. Overall, P2PMATHS successfully overcame the limitations of traditional teaching methods and static digital platforms by offering a flexible, interactive, and curriculum-aligned solution that improved students' understanding, retention, and interest in mathematics.

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